The impacts of education and institutional trust on citizens' willingness to report corruption: Lessons from Papua New Guinea

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Abstract

Educated citizens are often considered more likely to report corruption; this belief shapes anti-corruption campaigns. However, we know little about how other factors may interact with education's impact on willingness to report corruption. This article examines data from a household survey undertaken in Papua New Guinea. We find considerable support for the notion that education encourages a greater willingness to report various types of corruption to officials. While our results indicate that this is especially the case when respondents believe that corruption would be addressed by the government, they also show that secondary and post- secondary levels of education can have a positive impact even among those who do not have much faith in reporting institutions. However, the results also suggest that academics and policy makers should be sensitive to the way trust in the state impacts educated citizens' willingness to report different kinds of corruption.

Keywords: Corruption, anti-corruption, reporting, education, institutional trust, Papua New Guinea

Introduction

Educating citizens is often considered a critical part of addressing corruption, and donors have spent millions of dollars in support of programmes that aim to educate citizens about the dangers of corruption (Marquette 2007). There is, however, a growing body of literature that suggests that citizens are not listening (Marquette 2007; Bauhr 2012; Persson et al. 2013); there are few signs that global education and awareness efforts have led to citizens increasingly rejecting corruption or reporting it. Some believe trust in institutions plays a significant, and possibly greater, role in shaping citizen perceptions about and responses to corruption (Gorta and Forell 1995; Catterberg and Moreno 2005; Marquette 2007; de Sousa and Moriconi,2013; Lavena, 2013). Marquette (2007), for instance, suggests that the way citizens perceive formal institutions – including anti-corruption institutions – may determine perceptions about and responses to corruption, as much as higher levels of education.

No studies that the authors are aware of have sought to investigate the link between citizens' level of education, their trust in institutions, and their proclivity to report corruption. This article makes three distinct contributions to this debate. First, it examines what independent impact levels of education and institutional trust have on willingness to report corruption. Second, it explores whether the interaction between education and institutional trust influences willingness to report corruption. By doing the latter, the article is able to directly address these important questions. Finally, it draws out implications for academics and policy makers seeking to encourage reporting. Understanding these issues is important for designing meaningful anti-corruption policies and programs. If anti-corruption actors know what affects citizen reporting, they will be better able to focus their resources on activities that will most meaningfully encourage citizens to help address corruption, which has been shown to undermine economic growth (Mauro 1995), expedite environmental damage (Laurance et al. 2011), and undermine state legitimacy and stability (Seligson 2002).

This article draws on the analysis of a large-scale household survey conducted in Papua New Guinea (PNG) between 2010 and 2011. Uniquely the survey asked respondents to indicate their willingness to report a number of scenarios indicating possible corruption. PNG is an important case study because, like many developing countries, it is considered

to be suffering from acute corruption, and there is little clear evidence that citizens are able or willing to address it.

This article finds that when presented with certain scenarios of corruption, respondents with a high school or post high school level of education, had a greater willingness to report corruption. This was the case even among those who did not have much faith in reporting institutions. Together, the results suggests that a secondary level education or higher significantly shapes reporting; however, academics and policy makers should also be sensitive to the way trust in the state impacts educated citizens' willingness to report different kinds of corruption.

Education, trust and reporting

Most anti-corruption initiatives have an educative element at their core (Pope 2000; Chan 2005; McCusker 2006; Marquette 2007). There is some – albeit incomplete - evidence to suggest that this approach is warranted. Analyses of survey data have found that those with higher levels of education are less likely to tolerate corruption (Truex 2011; Gouda and Park 2012) and are less likely to look favourably on corruption (Melgar et al. 2010; Lavena 2013). There is some evidence that these perceptions shape people's likelihood of engaging in corruption and reporting it. Kaufmann, Montorriol-Garriga, and Recantini (2008) show that the more educated a person is, the less likely they are to pay bribes. The New South Wales Independent Commission Against Corruption's (ICAC) research on public servant perceptions of corruption (data that Gorta and Forrell 1995 draw upon) found that those with higher levels of education were significantly less likely to fail to act against, and more likely to report some types of corruption.

A number of academics have called for increased formal education as a response to corruption (Truex 2011; Uslaner and Rothstein 2012; Lavena 2013;). Truex states that: 'improving access to education in developing countries may reduce the presence of corruption norms and ultimately corruption itself' (Truex 2011, 1133). Education also appears to have long-term effects on corruption. In an analysis of 78 countries Uslaner and Rothstein (2012) find a 'powerful statistical link' between education levels in 1870 and corruption levels in 2010. They argue this is due to the establishment of broad based free education, which shows states' commitment to universalism, fairness and

impartiality, increases political legitimacy. For Uslaner and Rothstein (2012) education helps develop social trust, breaks collective incentives to engage in corruption, and spreads universal ideas that facilitate resistance to corruption. Although there are a paucity of studies that examine the direct link between education levels and citizens' willingness to report, the literature suggests a strong link between education and corruption reduction.

Given this, we test the following hypothesis:
H1: Those highly educated are more willing to report corruption.

Trust in state institutions

It is increasingly recognised that if citizens' trust that state institutions (such as an Ombudsman Commission or ICAC) will meaningfully address corruption is undermined, reporting is likely to suffer. To demonstrate this link, Gorta and Forell (1995, 335) asked Australian public servants to respond to the statement 'there is no point in reporting corruption as nothing useful will be done about it'. They found that agreement with this statement was strongly and positively associated with public servants indicating that they would do nothing when confronted with various scenarios of corruption. In turn they argue that 'if people do not believe that effective action will result from reporting corruption they will be less inclined to take action' (Gorta and Forell 1995, 335).

Similarly, in analyses of survey data from over 70 countries, Peiffer and Alvarez (2016) find that when the government is perceived to be effective in curbing corruption, people, particularly those who consider it widespread, are more willing to actively oppose corruption. Some have also found that mistrust in public institutions increases levels of permissiveness of corruption (Catterberg and Moreno 2005; Lavena 2013) and an unwillingness to vote out corrupt politicians (de Sousa and Moriconi 2013, 487). Given the importance of citizens' trust in state institutions suggested by this literature, the second hypothesis we test is:

H2: The less trust that a person has that the state will respond to corruption, the less willing they will be to report it.

Bringing it all together: trust, education and reporting corruption

A number of scholars, particularly political scientists, have drawn on large-N studies to examine the relationship between education and institutional trust. The findings are sometimes contradictory. Some suggest that education improves trust in political institutions (Anderson and Tverdova 2003; Anderson and Singer 2008), while others have found the opposite (Seligson 2002; Morris and Klesner 2010). Seligson (2002), for example, finds that education has a negative association with political legitimacy in three out of four countries in Latin America. In their multi-country study Hakhverdian and Mayne (2012) suggest that levels of corruption within countries explain these differences. They find that education is negatively related to institutional trust in corrupt societies, while the inverse is true for those less corrupt. These findings could be due to Marquette's (2007) contention that because they know how the political system should work, the highly educated are more likely to lose faith in state institutions. Highly educated citizens are more likely to express interest in politics (Delli Carpini and Keeter 1996), spend time gathering information about politics through reading newspapers (Dee 2004), and engage in political activities (Hakhverdian and Mayne 2012). All of these traits add to citizens understanding of how politics operates, and highlight the deficiencies of political institutions in corrupt states, potentially undermining their faith in the state.

While there have been no studies that specifically focus on the interaction of education and institutional trust on willingness to report corruption, the broader literature provides some hints on possible outcomes. Marquette argues that in developing countries 'civic education can teach people all about ideals, but if those ideals are not matched with real-life integrity in public office, then people stop paying attention to what they are being taught' (2007, 245). This perspective aligns with Hakhverdian and Mayne's (2012) assertion that the educated are less likely to trust political institutions in 'corrupt countries'. Together this suggests that because educated citizens have greater reason to distrust the state, they will be less willing to report corruption.

Given the importance of education in anti-corruption programs, Marquette's (2007, 245) concern, that education's impact on the propensity to report corruption may fall flat if citizens do not sufficiently trust formal political institutions is relevant for academics and practitioners. For both groups it challenges the widely held view that educating citizens

is a magic bullet for addressing corruption. Thus, two further hypotheses are articulated to specify the potential interactive relationship.

H3a: Education will have a positive impact on willingness to report when it is accompanied with a high level of trust in reporting institutions,

H3b: Education will not impact willingness to report when it is accompanied with a low level of institutional trust.

Reporting corruption in Papua New Guinea

Outside assessments suggest that PNG is significantly corrupt; in 2011 (when the survey we base this study on was completed) Transparency International's (TI) Corruption Perceptions Index scored PNG at 2.2 out of 10, where 10 indicates greater control of corruption, and it was ranked 154th out of 182 countries (Transparency International 2011)[1]. Inside PNG, corruption scandals are reported upon almost daily in media across the country. However, there is a sense that those involved in corruption face few consequences (Pitts 2002; Sharman 2012), which likely reduces the chances of reporting.

While there are a number of agencies responsible for addressing corruption in PNG, for ordinary citizens, the most relevant anticorruption institutions for reporting corruption were (and still are) the Ombudsman Commission of PNG (OC PNG) and the Royal PNG Constabulary (RPNGC). The OC PNG's work is undermined by a tumultuous relationship with political leaders, limited powers of censure and meagre resources (Justice Advisory Group 2005). Though it has had some success in prosecuting politicians and others for wrongdoing (Ketan 2007), the organisation is perceived as 'toothless' by some (Mellam and Aloi 2003) as it has little power to impose significant penalties of those involved in wrongdoing.

At the time of the survey, the RPNGC were involved in the NACA – an alliance of government agencies including the OC PNG, Department of Treasury, Solicitor General, Public Prosecutor and other government departments. Since August 2011, the police have worked with Taskforce Sweep, a multi-agency anti-corruption taskforce, which

[1] In 2015 PNG scored 25 out of 100 and it was ranked 139 out of 168 countries in TI's Corruption Perceptions Index.

investigated numerous cases of corruption in PNG, before being effectively shut down by the Prime Minister, Peter O'Neill, at the end of 2014[2].

The RPNGC suffers from poor staffing levels. The number of police has not grown significantly since the country's independence in 1975; Dinnen et al. (2006, 89) calculate that the ratio of police to the population at independence was 1:380, but we calculate it is now around 1:1404, well below the United Nation's recommended ratio of 1:450 (Dinnen et al. 2006). Many officers have low skills and are unable to undertake routine criminal investigations or apprehend suspects; management is also often poor (Dinnen et al. 2006). Police are beholden to strong kinship loyalties that undermine their ability to impartially investigate crimes. In addition, the police themselves suffer from corruption, fraud and illegal conduct within their own ranks, which threatens their credibility and effectiveness (Dinnen et al. 2006; McLeod and Macintyre 2011).

Despite the many constraints and the few convictions for corruption, citizens are urged by a number of anti-corruption actors to report corruption. In the early 2000s citizens were encouraged to report corruption through the media-led 'war on corruption' campaign (Mellor and Jabes 2004, 23). The OC PNG promotes reporting through their outreach programs, as does the NGO community.

The weakness of anti-corruption institutions coincides with poor education outcomes. The World Bank estimates that in 2015 the adult literacy rate was 63 per cent; however functional literacy rates are likely much lower, one survey of five provinces estimates functional literacy rates to be around 13 per cent (ASPBAE 2011, vii). Recently the country's access to primary education has been significantly bolstered through the introduction of a universal tuition fee free policy introduced in 2012. The policy now provides free tuition up to year 12. As a result gross enrolment increased to 96 per cent in 2014 according to the PNG Department of Education (2015). Education is particularly important as it can help communities more meaningfully engage with and benefit from development. Previous research has shown that education provides rural communities

[2] Taskforce Sweep has been relatively successful in coordinating the police and other government departments to investigate and prosecute corruption. However, the taskforce had not made a significant impact at the time of the study, and thus did not shape respondents' perceptions about reporting.

in PNG with greater negotiating power with the private sector and the state (Walton and Barnett 2008).

Corruption survey in PNG

This article draws on data from a household study of 1,825 respondents across nine out of a possible 21 province-level divisions – Eastern Highlands, Enga, East Sepik, Milne Bay, Madang, National Capital District, New Ireland, Southern Highlands and East Sepik – which was undertaken between 2010 and 2011. Provinces represented the four administrative districts within PNG – two provinces came from each administrative district with three for the highly populated highlands area. The survey was funded by the Australian aid program and overseen by a research committee consisting of local anti-corruption experts from civil society and academics; local and experienced researchers from each of the provinces were employed (to ensure the surveys could be translated into local languages if required). Within each province, households were randomly selected from a region within 25km of each urban area. Within each stratum, the sample was selected in two stages, with Census Units (CUs) as primary sampling units and households as secondary units. In the first stage, 10 CUs (5 urban and 5 rural) were selected in National Capital District, and 4 CUs (2 urban and 2 rural) in each of the other five provinces. The first stage sample frame was the Papua New Guinea National Census of 2000 (another census was undertaken in 2011, its results were not available at the time of fieldwork). The sampled CUs were selected with probability proportional to size. In the second stage, 50 households were selected with equal probability in each CU, following a household listing operation supported by Google Earth overhead photography.

A sample of 500 households (250 urban and 250 rural) was allocated to the National Capital District, and a sample of 200 households (100 urban and 100 rural) to five provinces: Southern Highlands, New Ireland, Madang, Milne Bay and Eastern Highlands Province. Enga, East Sepik, and West Sepik were allocated a target sample size of 100. The results from each province were 'weighted' according to provincial population size (i.e. a large-population province would have more weight than a small-population

province, weighting was proportional to the population totals in each province).[3] For further information see: Transparency International (2013).

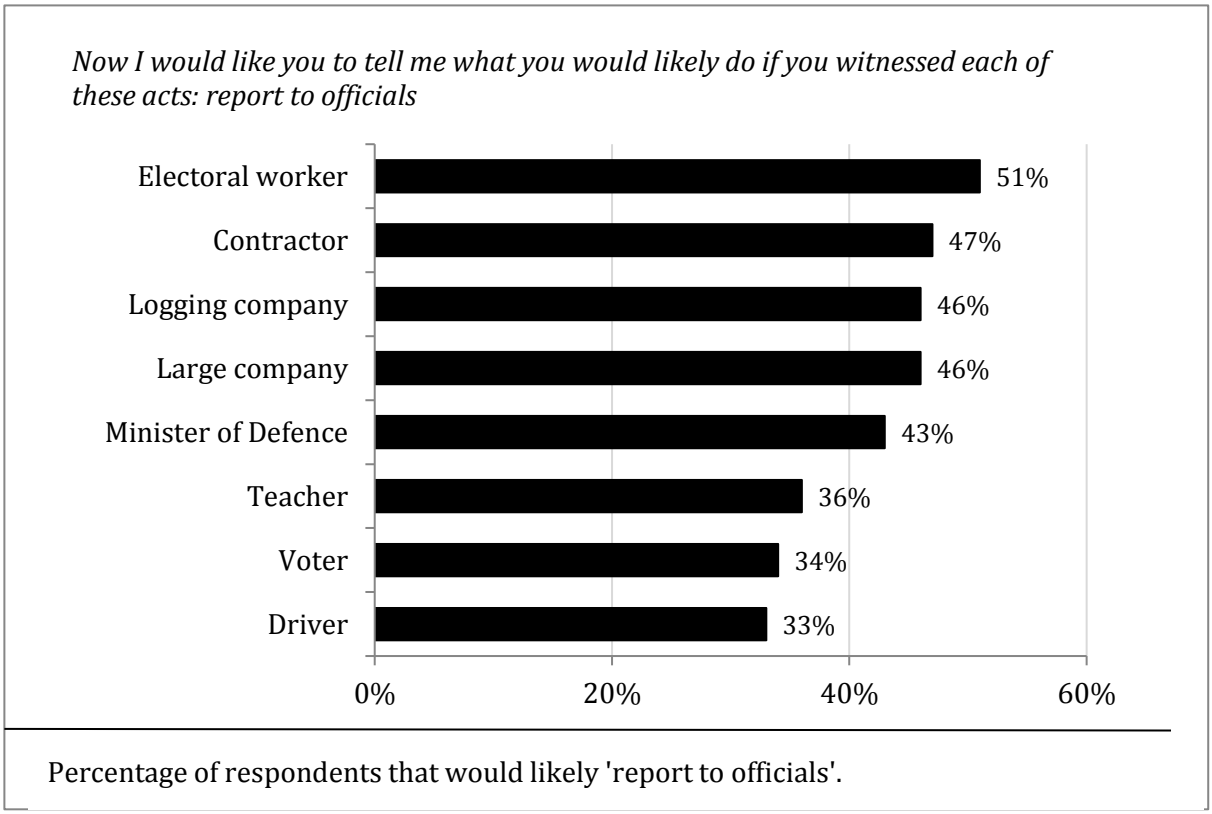
To examine the way that people respond to multiple types of corruption[4], the questionnaire included scenarios of corruption. Scenarios and questions were derived from studies into citizen and elite perceptions of corruption (Peters and Welch 1978; Johnston 1986, 1989; Independent Commission Against Corruption 1994; Jackson and Smith 1996) and adapted for the local context. Surveys were tested individually and in focus groups to ensure that they would resonate with Papua New Guineans. Collectively the eight scenarios included in this analysis (Table 1) reflect corruption defined as 'the abuse of power for private gain'; they differ based on the scale and type of corruption. Three of the scenarios heavily featured the private sector.

Table 1 (see below)

Respondents were asked what they would do if they witnessed these acts and could choose one or up to all of four responses to each of the scenarios: 'directly confront', 'tell a friend', 'report to officials', or 'nothing'. Here we examine the factors effecting the reporting of corruption to public officials. Figure 1 illustrates that there is considerable variation in reporting the scenarios. Taking the two extremes, half of respondents were willing to report the *Electoral Worker* scenario, but only a third were likely to report the *Driver* and *Voter* scenarios.

Figure 1

[3] Details on demographic statistics, trust measures and education levels across a weighted and unweighted sample are documented in Appendix 1.
[4] Surveys often fail to capture the multi-dimensional nature of corruption (see: Johnston, 1986, 1989; Truex, 2011)



Percentage of respondents that would likely 'report to officials'.

Estimation strategy

In the following analysis (Table 2), indicated willingness to report each of the various scenarios to authorities are our dependent variables (coded as 1 for willing). Because the response options to these questions are dichotomous, we employ logistic regression analyses when analysing their determinants. We focus on whether and how education and institutional trust impacts a respondent's willingness to report each scenario to the authorities. A respondent's education level is measured with the inclusion of four dichotomous variables: basic, intermediate, high school and post high school. In each case, a 1 indicates that the respondent's highest level of education aligns with the associated category, while a 0 indicates that it does not. The reference or baseline level of education, left out of the models, is having had completed no formal education at all. A fifth of the sample reported not completing any formal education (20.2 per cent), almost a third reported completing a basic level of education (28.4 per cent), close to a quarter reported completing an intermediate level of education (24.4 per cent), 14 per cent of the sample reported completing a high school level of education and a further 13 per cent, a post-high school level of education.

A lack of institutional trust is measured by a dichotomous variable, where 1 represents agreement or strong agreement with the statement *'there is no point in reporting corruption because nothing useful will be done about it'*, and 0 represents disagreement or strong disagreement to the statement. With this measure 38 per cent of the sample lacks institutional trust.

We also controlled for the impact of several other potentially important factors. This included how corrupt and unacceptable the respondent perceived each scenario to be[5], the perceived extent to which corruption is thought to impact the future of the country, the degree of expressed political interest, gender, urbanisation, identification with Catholicism, and, finally, the extent of 'lived poverty'[6]

Testing for direct effects: H1 and 2

As the first two hypotheses we outlined refer to the potential *direct* effects that education and institutional trust have on willingness to report corruption, we first estimate logistic regressions without the inclusion of an interaction term between education and trust (per hypothesis H3). Table 2 shows the results of each analysis performed. As standard logit coefficients are difficult to interpret, we transform them and report more intuitive odds ratios in Table 2. A significant odds ratio with a value greater than 1.00 indicates that a one unit positive change in the independent variable is associated with an increase in the odds of someone being willing to report the scenario to authorities. Likewise, an odds ratio of less than 1.00 indicates that the associated variable decreases the odds.

[5] On average, across the eight scenarios, these two variables – degree of corruption and unacceptability – were only 40 per cent correlated.

[6] Principal component factor analysis was used to construct the 'lived poverty' measure from responses to questions of how often the respondent's household has had to go without basic goods, like food, clean water and medical treatment in the past year; possible responses to these questions ranged from never (1) to always (5). The factor analysis formed a single factor with an eigenvalue of 2.40, which is well over conventional threshold for creating a composite measure. We relied on the original survey response categories for all other control variables. Details on coding and the range, mean and standard deviations of all variables used are included in Appendix 2.

Table 2 (see below)

Results in Table 2 lend strong support to the notion that education increases willingness to report corruption (H1). Having completed high school, compared to not having completed any formal education, is positively and significantly associated with willingness to report corruption in all but the *Electoral Worker* scenarios. Post high school education is similarly positively and significantly associated with willingness to report in all but the *Electoral Worker* and *Teacher* scenarios. Basic education and intermediate levels of education have less of a robust impact across the scenarios (Table 2). Moreover, in all of the models where education is significantly associated with willingness to report—bar the *Teacher* scenario model—the estimated influence of having a post high school level of education (odds ratio) is largest, with the estimated influence associated with having a high school level of education being the second largest.

Table 3 shows the predicted probabilities (estimated by holding the effects of all else in the models constant) of being willing to report each scenario, at each level of education tested. The predicted probabilities for the *Contractor, Voter, Driver,* and the *Minister of Defence* scenarios, show that citizens who have a post high school education are expected to be at least 25 per cent more likely to be willing to report, than those without formal education. In the case, of the *Logging Company,* and the *Large Company scenarios* there was a 20 per cent greater likelihood of willingness to report.

Table 3 (see below)

The predicted probabilities in Table 3 further confirm that the higher the level of education obtained, the more willing respondents were to report corruption. Across all of the models, the mean predicted probability of being willing to report corruption associated with an intermediate level of education is 11 percentage points less than the predicted probability associated with a post-high school education, and 9 percentage points less than the predicted probability associated with a high school education. These findings—that higher levels of education levels positively influence willingness to report corruption—square well with the claims of many anti-corruption agencies and academics (Pope 2000; Chan 2005; McCusker 2006).

Our second hypothesis (H2) – that institutional trust will be positively associated with willingness to report corruption –receives mixed support (Table 2). The impact of trust is significantly associated with reporting in half of the eight scenarios (significant in the *Contractor, Large Company, Electoral Worker,* and the *Minister of Defence* scenarios). As expected, when significantly associated, agreeing that nothing useful will come of reporting corruption negatively impacts reporting; however, the substantive influence of institutional trust tends to be much lower than that of having a post high school education. Table 4 shows the magnitude of the effect across the eight models. Marking the largest estimated effect a shift from *dis*agreeing that 'nothing useful will be done' ('something useful') to agreeing that 'nothing useful will be done' is associated with a 17 per cent decrease in the predicted probability of being willing to report the *Large Company* scenario. The same shift is associated with an 11 per cent decrease in the predicted probability of reporting the *Contractor, Electoral Worker and the Minister of Defence* scenarios.

Table 4 (see below)

To check that education and institutional trust's influences on willingness to report were robust to other model specifications, each of the eight models were run three additional times (all results are documented in Appendix 3). The additional models respectively excluded: 1) all variables except for the education variables and institutional trust, 2) attitudinal variables, or 3) demographic variables. Across these 24 additional 'reduced' models, the results, with respect to the effects of the education variables and institutional trust on willingness to report all eight scenarios, were by in large robust (consistent with the statistical significance associated with the effects, as well as similar sized and direction of odds ratios that are reported in Table 2). [7]

[7] Focusing on education, the main differences between the 24 additional models and those reported in Table 2 are that high school education and post high school education is positively and significantly associated with willingness to report in all three of the additional models run for the *Electoral Worker* scenario model (they are not significantly associated in Table 2). Focusing on institutional trust, the 24 additional models robustly echoed all significant associations found between a lack of institutional trust and willingness to report in Table 2. In addition, a lack of institutional trust was negatively and significantly associated with willingness to report in one of the reduced *Voter* scenario models, two of the reduced *Logging company* scenario models, and two of the reduced *Driver* scenario models (none of these were significant in Table 2).

The impact of the control variables in Table 2, suggest that conceptualising an act to be 'corrupt' is a precondition to being willing to report it to authorities – a similar finding to Gorta and Forell's (1995) study of Australian public servants. Except in the case of the *Electoral Worker* scenario, believing the scenario is unacceptable does not influence willingness to report. This suggests a cognitive separation is made between what is corrupt and what is unacceptable: despite one's own evaluations of the acceptability of a scenario, only those thought to be corrupt deserve the effort needed to gain the attention of the authorities.

Table 2 also shows that age is estimated to have a positive effect on reporting in one model (*Teacher*), and being a female has a negative effect in three (*Contractor, Driver*, and *Teacher*) and a positive effect in just one (*Logging Company)*. This reflects others' findings that older people are more likely to reject corruption (Lavena 2013; Seligson 2002), but not that women are more likely to report corruption (Gorta and Forell 1995). In the case of PNG, females may be less likely to report because of institutionalised gender bias. This is seen in the RPNGC where nearly 95 per cent of staff are male (McLeod and Macintyre 2011, 167).

Urbanites were significantly less likely to be willing to report the *Large Company*, *Driver,* and *Teacher* scenarios to authorities. Identifying as Catholic is negatively and significantly associated with willingness to report one of the scenarios (*Electoral Worker*), and positively and significantly associated with willingness to report another (*Voter)*. Having an interest in politics is significantly associated with willingness to report only one scenario (*Contractor),* and poverty is found to be negatively and significantly associated with willingness to report three scenarios (*Voter, Driver, and Electoral worker).* Finally, a concern about the future impacts of corruption has significantly shaped willingness to report two scenarios (*Logging Company and Electoral Worker).*

The impact of education when institutional trust varies (H3)

Though we find that education tends to have a robust and positive influence on willingness to report corruption, it is still unclear as to whether and/or how education's positive impact is also influenced by varying levels of institutional trust. As we hypothesize, it may be the case that education has a positive impact on willingness to

report when trust in institutions is high (H3a), but education's positive influence is nullified when it is accompanied with a low level of institutional trust (H3b) (Marquette 2007, 245). To test these ideas we estimated new logit analyses using the regression models of Table 2 as base models and added to them two interaction variables, created between having a high school education and a lack of institutional trust, and having a post-high school level of education and a lack of institutional trust.

Table 5 shows that the two tested interaction variables are mostly insignificantly associated with the dependent variables. Only in the case of the *Logging Company* scenario model, is one of the interactions statistically significant (trust and post high school education). However, Ai and Norton (2003) warn that estimating the direction, size, and significance of the impact that an interaction variable has on a dependent variable in a logit analysis is not as straightforward as it is to do so in a linear, ordinary least squares (OLS) regression. Statistical inferences cannot be made about an interaction by simply looking at its odds ratio and statistical significance; insignificant odds ratios may hide that the interaction term is significantly associated with the dependent variable at specific levels of both constituent terms (but not at other levels) (Ai and Norton 2003).[8]

Table 5 (see below)

Therefore, we focus our attention on 'unpacking' the effects of one of the interaction variables—between having a post-high school education and having institutional trust—, which we summarise in Table 6[9]. The interaction includes post-high school education, as opposed to high school education, because this level of education tended to most significantly influence willingness to report (Table 2). Table 6 allows us to investigate what impact having a post high school education has on willingness to report at different levels of trust. Put differently, we address the question: how, if at all, is willingness to report impacted by an estimated change in education levels, when that change is also accompanied with disagreement that nothing useful will be done if corruption is reported (something useful), or agreement that nothing useful will be done (nothing useful).

[8] In Table 4, the effects of all other variables, minus the constituent terms of the interaction variables, behave much as they did in the Table 2 analyses.
[9] We include a similar table to Table 6 in Appendix 4 that includes the 'unpacked' effects of the interaction. The results in that table are similar to that of Table 6.

The first four columns of Table 6, displays the shifts in the predicted probabilities (and associated p-values) of being willing to report each scenario associated with a change from having no formal education (minimum level) to having post-high school education (maximum level). These predicted shifts are estimated twice. Holding the effects of all else constant, they are estimated as co-existing with lack of institutional trust ("nothing useful" column) and again, as co-existing with a presence of institutional trust ("something useful" column). The last two columns display results from contrast tests. Contrast tests tested the null hypothesis of whether the estimated shift in the probability of being willing to report corruption associated with a minimum to maximum shift in education at a low level of institutional trust is equal to that of the same shift when it is accompanied with a high level of institutional trust. Rejection of the null hypothesis signifies that the two estimates are statistically significantly different in size.

Table 6 (see below)

Results in Table 6 support our hypothesis (H3a) that education will have a positive influence on willingness to report corruption when accompanied with higher institutional trust. Across six out of eight of the models, when accompanied with a view that something useful will be done if corruption is reported to authorities, a positive shift in education levels is estimated to have a significant and positive change in the predicted probability of being willing to report corruption. (Only the *Teacher* and *Electoral Worker* scenarios were not significant). When accompanied with a notion that something useful will be done, a minimum to maximum change in education is predicted to significantly increase the probability of being willing to report the *Minister of Defence* and *Contractor* scenario to authorities by 33 per cent, the *Voter and Logging Company* scenarios by 27 per cent, and the *Driver* and *Large Company* scenarios by 26 per cent. These findings support the notion that formal education helps encourage citizens to report corruption.

The results provide little support for the expectation that a lack of institutional trust will cancel out the positive influence education has on reporting (H3b). In only two models, the *Large Company* and *Logging Company* –scenarios that prominently feature the private sector—does this appear to be the case. In these scenarios a minimum to maximum shift in education is positively and significantly associated with being willing to report corruption when institutional trust is high (Table 6), but not significantly associated

when trust is low. These findings raise a modest red flag: they suggest that in some circumstances low trust in state institutions can help eliminate the positive impact that education has on encouraging reporting.

Table 6 also shows that in half of the 8 models a minimum to maximum change in education levels is positively and significantly associated with willingness to report, *even when such a change is accompanied with a low level of institutional trust.* After holding the effects of all other variables in the model constant, when accompanied with a notion that nothing useful will be done, a minimum to maximum change in education is still predicted to significantly increase the probability of being willing to report the *Minister of Defence* scenario by 21 per cent, the *Driver* and *Voter* scenarios by 22 per cent, and the *Contractor* scenario by 24 per cent. Compared to the *Large Company* and *Logging Company* scenarios, these four scenarios more prominently feature public officials. These findings further undermine confidence that lack of institutional trust eliminates the positive influence that education may have on reporting (H3b).

Contrast tests (Table 6) support this. In these scenarios (*Minister of Defence, Driver, Voter,* and *Contractor*) the shift in the predicted probability of being willing to report associated with going from no formal education to a post high school level, at low levels of trust, is not statistically different from the same shift in education at high levels of trust. In all four scenarios a minimum to maximum change in education levels is estimated to positively influence willingness to report to the same degree when it is accompanied with high and low levels of institutional trust (with the lowest p-value: 0.14).

Why is it that highly educated citizens are still more likely to report corruption, even when they lack trust in the state's ability/willingness to respond? We believe there are three key factors at play. First, as explained, educated Papua New Guineans tend to be more invested in the state and development and therefore, even if they are cynical, they may still have enough incentive to report corruption. They may see reporting as one of their only options to do something that might have a slim chance of helping to progress development, and they stand to be the likely greatest beneficiaries of such development. Second, given their tendency to be more engaged with the state, they likely have more knowledge of how to report corruption, and crucially, who to report corruption to. In having greater access to this type of knowledge, educated citizens may find it much easier

to report corruption, and so it may also be the case that, even when trust in the state is low, educated citizens will report corruption more frequently because they find the costs of doing so to be far less than those poorly educated. Finally, consistent with Uslaner and Rothstein (2012), educated citizens tend to be more likely to reflect a 'universalist idealism'. To the extent that this is the case in Papua New Guinea, this may then mean that because corruption is an affront to their personal values, educated citizens may feel morally compelled to do what they can to fight corruption—if strong enough, such principles can overcome the belief that the state will let them down.

Conclusions

We consistently find that formal education is positively linked to willingness to report corruption to authorities, and specifically, find that having a high school and post-high school education is most robustly associated with a greater willingness to report corruption. The impact of this level of schooling makes sense, as it is during this time pupils start to learn about how the state should function, and perhaps, how states function elsewhere. In addition, we contribute to the literature on corruption reporting by showing how low levels of trust can diminish the positive influence that education has on willingness to report corruption. Our results confirm the idea that, when paired together, high levels of trust and education can be a powerful positive influence on willingness to report corruption. And, when examined in isolation, we found mixed support for the idea that a lack of trust diminished willingness to report corruption. Perhaps most importantly, we show that having a high school or post high school level of education can be a positive influence on willingness to report corruption even when trust is low. With respect to certain corruption scenarios, education, it seems, may be able to make up for any deficit in the will to report that a lack of trust may create.

Here our findings align to an extensive body of literature – academic and practitioner – which suggests that those who are better educated are more likely to report corruption. This means that in the case of PNG (as elsewhere, see Uslander and Rothstein 2012) corruption is likely to be fought as much or more through education reform as traditional anti-corruption methods (reforms that improve governance institutions or increase awareness about the problem). This means the PNG Government's efforts to make

education more accessible has the potential to act – over time – as an important anti-corruption measure. For policy makers seeking to improve reporting of corruption in PNG, funding education initiatives should form a significant part of anti-corruption strategies. However, this does not mean that institutional capacity and trust are not important ––—in our analyses, the respondents most likely to be willing to report are those with high levels of both trust and education.

There is an important caveat to these main findings. In two scenarios involving the private sector, the results showed us that a lack of trust can hamper the degree to which education is a positive influence on reporting. This suggests that, in PNG, the impact of trust on reporting corruption is contingent upon the private sector involvement. This highlights the contingent nature of corruption reporting – not only will some kinds of corruption evoke a higher willingness to report than others, but the ways trust and education influence reporting will differ by the type and context of corruption. So while it is encouraging that our analyses showed education can help overcome the negative influence of a lack of trust on reporting, they also suggest that academics and policy makers should 'unbundle' the corruption problematic – by designing research into the problem and strategies to encourage reporting that does not treat corruption as homogenous, or interchangeable. In turn, our findings provide nuance to anti-corruption narratives (which are apparent in PNG and many developing countries) that tend to see education as a magic bullet to all types of corruption.

Because they are more likely to be connected to the state and invested in development, the highly educated are an important group to target to encourage reporting corruption. Previous research has shown how marginalised groups in PNG are more likely to respond corruption if they can see a link between anti-corruption initiatives and tangible development and service delivery (Walton 2013). Our research suggests that targeting the highly educated will require different strategies; ones that bolster institutional trust. Bolstering trust that the state will act on corruption is even more important where private sector is involved. Given the important role that the private sector plays in providing service delivery in PNG (Walton 2015), policy makers should prioritise building the state capacity to resist private sector corruption.

In countries that suffer from systemic corruption, the difficulties involved with bolstering trust should not be understated. In the case of PNG, anti-corruption institutions have suffered from a history of poor capacity, with clear signs that the PNG government has stepped back from supporting anti-corruption efforts - for example, by defunding Taskforce Sweep. These efforts have eroded the public's trust in the state, and restoring this trust will take time and significant effort.

Improving trust among the highly educated could include providing information about the number and type of corrupt prosecutions and tracking funding spent on anti-corruption initiatives. This could mean ensuring the public can monitor improvements made to each link in the reporting chain: from reporting (to police, ombudsman, etc.), to processing the complaint, to referral (to courts and tribunals), to decisions and punishment. This would help identify bottlenecks and issues inhibiting genuine reports of corruption. Such reform would also need arms-length political support – i.e. support that enables improvements to the system but does not bring about interference. Reporting systems must be robust enough to monitor and take on powerful political elites, whose interests reside in maintaining the status quo.

Table 1: Eight scenarios of corruption

Scenario	Label	Scale	Type	Influence of private sector
A contractor hands money to a public servant in order to be favoured in a contract bid	CONTRACTOR	Large[i]	Bribery	High
A voter accepts an offer to sell his vote to a candidate for 50 kina	VOTER	Petty	Bribery	Low
A logging company gets logging access to customary land by flying customary leaders to Australia and giving them gifts, without consultation with other community members.	LOGGING COMPANY	Large	Undue influence	High
After a large company legally influences politicians, the government passes a law which helps them make greater profits	LARGE COMPANY	Large	Undue influence	High
A man is employed as a driver for a government department by his *wantok* [relation/friend] without going through a recruitment process. He is a safe and reliable driver.	DRIVER	Petty	Nepotism	Low
A teacher takes pens and note pads from her school stores cupboard to use for her church meetings.	TEACHER	Petty	Embezzle-ment	Low
Electoral workers are provided with food and drink by a candidate.	ELECTORAL WORKER	Petty	Undue Influence	Low
A Minister for Defence owns a company with which the Defence Department has a million dollar contract.	MINISTER OF DEFENCE	Large	Conflict of interest	High

Table 2: Logit analyses of the determinants of willingness to report corruption

	Contractor	Voter	Logging co.	Large co.	Driver	Teacher	Electoral worker	Minister of Defence
Education								
Basic	1.40	1.83**	1.36	1.19	1.77*	1.09	1.04	1.43
Intermediate	1.38	2.09**	1.33	1.17	1.89**	1.11	1.15	1.77*
High School	2.67***	2.50***	1.82*	2.14**	2.75***	1.68*	1.43	2.13**
Post High School	3.36***	2.99***	2.36***	2.65***	2.94***	1.29	1.47	3.73***
Institutional trust								
Nothing useful	0.63**	0.90	0.81	0.58***	0.79	1.03	0.72*	0.76+
Other controls								
Conceptualise: corrupt	1.19*	1.31**	1.55***	1.28**	1.21*	1.21*	1.28**	1.42***
Conceptualise: unacceptable	0.87	0.99	1.02	1.07	0.93	0.94	1.28**	1.05
Impacts future	1.09	1.00	1.16+	1.11	1.11	1.13	1.16+	1.13
Lived poverty	0.95	0.86*	0.99	0.99	0.90+	0.89	0.85*	0.97
Female	0.71**	0.80	1.25+	1.00	0.53***	0.66**	0.95	1.14
Urban	0.83	1.22	0.89	0.73*	0.79+	0.70*	0.81	0.83
Age	1.00	1.00	1.00	0.99	1.01	1.02*	0.99	1.00
Political interest	1.15*	0.91	1.11	1.00	0.95	0.92	1.11	1.10
Catholic	1.24	1.32*	1.14	1.02	0.88	0.79	0.73*	0.95
N	1673	1684	1681	1654	1684	1686	1679	1633
Pseudo R^2	0.066	0.047	0.051	0.057	0.054	0.033	0.054	0.064
Prob of Chi^2	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000
Wald Chi^2	81.08	63.26	63.33	65.35	69.56	37.04	66.25	74.97

Note: Table displays odds ratios; significance of associated p-values are denoted by: +p<0.10, *p<0.05, ** p<0.01, *** p<0.001.

Table 3: Estimated probability of being willing to report associated with different education levels

Education levels	Contractor	Voter	Logging co.	Large co.	Driver	Teacher	Electoral worker	Minister of Defence	Mean
None	0.47	0.32	0.46	0.47	0.32	0.35	0.53	0.45	0.42
Basic	0.55	**0.46**	0.54	0.51	**0.45**	0.37	0.54	0.54	0.50
Intermediate	0.55	**0.49**	0.54	0.51	**0.47**	0.38	0.56	**0.58**	0.51
High school	**0.69**	**0.55**	**0.61**	**0.64**	**0.56**	**0.47**	0.61	**0.63**	0.60
Post high school	**0.73**	**0.58**	**0.66**	**0.68**	**0.58**	0.41	0.61	**0.73**	0.62
Difference: None to Post high school	0.26	0.26	0.20	0.21	0.26	0.06	0.08	0.28	0.20

Notes: Table displays the predicted probability of reporting each scenario, associated with different levels of education. Predictions are based on post-estimations of the analyses in Table 2. The predicted probabilities associated with significant odds ratios in Table 2 are bolded here ($p<0.10$).

Table 4: Estimated probability of being willing to report associated with different institutional trust levels

Education levels	Contractor	Voter	Logging co.	Large co.	Driver	Teacher	Electoral worker	Minister of Defence	Mean
'Nothing Useful'	**0.53**	0.37	0.52	**0.54**	0.39	0.36	**0.57**	**0.51**	0.47
'Something Useful'	**0.42**	0.33	0.43	**0.37**	0.29	0.36	**0.46**	**0.40**	0.38
Difference	0.11	0.04	0.09	0.17	0.10	0.00	0.11	0.11	0.09

Notes: Table displays the predicted probability of reporting each scenario, associated with different levels of institutional trust. Predictions are based on post-estimations of the analyses in Table 2. The predicted probabilities associated with significant odds ratios in Table 2 are bolded here ($p<0.10$).

Table 5: Logit Analyses with Interactions

	Contractor	Voter	Logging co.	Large co.	Driver	Teacher	Electoral worker	Minister of Defence
Interactions								
High School * nothing useful	1.22	0.71	1.03	1.68	0.89	0.75	1.42	1.26
Post High School * nothing useful	1.45	0.84	0.32**	0.55	0.87	0.87	0.99	0.54
Education								
Basic	1.38	1.85**	1.39	1.19	1.78*	1.10	1.03	1.43
Intermediate	1.37	2.10**	1.36	1.17	1.90**	1.12	1.14	1.78**
High School	2.48**	2.78***	1.86*	1.85*	2.86***	1.85*	1.28	2.01*
Post High School	2.96***	3.18***	3.40***	3.19***	3.08***	1.36	1.46	4.58***
Institutional trust								
Nothing useful	0.59**	0.96	0.93	0.59**	0.82	1.09	0.69*	0.80
Other controls								
Conceptualise: corrupt	1.19*	1.31**	1.54***	1.28**	1.21*	1.21*	1.27**	1.43***
Conceptualise: unaccept.	0.87	0.99	1.03	1.07	0.93	0.93	1.28**	1.05
Impacts future	1.10	1.00	1.14	1.10	1.11	1.12	1.16	1.12
Lived poverty	0.95	0.86*	0.99	0.98	0.90	0.89	0.85*	0.97
Female	0.71**	0.80	1.26	1.00	0.53***	0.66**	0.95	1.15
Urban	0.83	1.21	0.90	0.74*	0.79	0.70**	0.82	0.83
Age	1.00	1.00	1.00	0.99	1.01	1.02*	0.99	1.00
Political interest	1.15*	0.91	1.11	1.00	0.95	0.92	1.11	1.10
Catholic	1.24	1.32*	1.13	1.01	0.88	0.79	0.73*	0.95
N	1673	1684	1681	1654	1684	1686	1679	1633
Pseudo R2	0.066	0.047	0.057	0.060	0.054	0.034	0.055	0.066
Prob of Chi2	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000
Wald Chi2	82.03	64.48	68.65	71.09	69.73	37.79	67.29	75.73

Note: Table displays odds ratios; significance of associated p-values are denoted by: * p<0.05, ** p<0.01, *** p<0.001.

Table 6: Impact of post high school education on reporting at high and low levels of trust

	"Something useful"		"Nothing useful"		Contrast test	
	Shift in PP	P-value	Shift in PP	P-value	Chi^2	$P>chi^2$
Consistent positive influence						
Minister of Defence	0.33	0.000	0.21	0.009	2.13	0.144
Driver	0.26	0.000	0.22	0.007	0.19	0.660
Voter	0.27	0.000	0.22	0.004	0.25	0.615
Contractor	0.33	0.000	0.24	0.000	1.24	0.266
Positive influence with high trust, no influence at low trust						
Large Company	0.26	0.000	0.13	0.108	2.49	0.114
Logging Company	0.27	0.000	0.02	0.778	8.62	0.003
Consistent lack of influence						
Electoral Worker	0.09	0.150	0.08	0.318	0.00	0.993
Teacher	0.07	0.285	0.04	0.650	0.12	0.727

Note: First four columns displays shifts in the predicted probability (shift in PP) and associated p-values of being willing to report corruption associated with going from having no education to having a post-high school education, at high and low levels of trust. Estimated predicted probability shifts held the effects of all other variables constant. The last two columns display results from contrast tests. Contrast tests tested the extent to which the shift in PP at low and high levels of trust were significantly different from one another.

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[i] While the amount of money involved in this transaction is not indicated, it is assumed that the amount would be of a large scale given the nature of the transaction.